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MEMORY COMPLAINTS, DEPRESSION, AND MEMORY FUNCTIONS IN THE ABLE ELDERLY

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ABSTRACT

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The present study investigated the relationship between memory complaints, self-reported depression, and objective memory performance in a sample of community dwelling older adults (N = 121). Participants were administered a depression measure (Geriatric Depression Scale), an everyday memory task (Rivermead Behavioural Memory Test), a traditional laboratory memory task (Logical Memory I), and a memory complaint questionnaire (Memory Assessment Clinics Self-Rating Scale). Contrary to expectations, given methodological refinements over some previous research, the everyday memory scores did not account for the most variance in the memory complaint scores. Results indicate that the depression scores accounted for the most variance (r^2 = .195, $p < .001$) in the memory complaints scores, followed by the everyday memory task scores (r^2 = .127, $p < .001$). In addition, there were no significant gender differences found in these measures. Implications of these data are discussed.

In memory of my dad, Paul Thomas Jones

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INTRODUCTION

Discussion of age effects on memory is no simple task. One of the most difficult problems that must first be overcome is defining memory itself and, more importantly, describing the actual processes that are involved in "memory." Since memory and learning are closely associated, LaRue (1992) offers a model (pp. 55-60), that divides memory into four different stages based on information-processing. The first is sensory memory (SM) which is described as a short-lived, relatively complete representation of an external stimulus. This information is subject to almost immediate decay unless it is transferred into the second stage, short term memory (STM). Research indicates that there are age-related deficits in the operation of STM (Ceralla, Poon, & Fozard, 1982; Walsh, Till, & Williams, 1978). The second stage, STM, is a temporary, limited capacity store, which requires rehearsal and conscious mental effort. Many years of research indicates that the capacity for STM is seven ($\pm$2) "pieces" of information which are held for a relatively short period of time (approx. 10-30 seconds). The investigations seem to support that STM is relatively unaffected by normal aging. The third stage is called long term memory (LTM) which is the, "relatively permanent, unconscious repository of acquired information that is not restricted in its capacity" (LaRue, p. 56), and includes both retrieval and recognition of the information stored. Research in laboratories and in clinical work seems to show that LTM is most affected by the aging process. The final stage of memory is tertiary memory (TM) or the ability to recall remote information, events, and data from earlier in people's lives. "Studies of TM have had variable outcomes, but most suggest some age

related decline" (LaRue, p. 61). Memory decline, and cognitive decline more generally, seems to be a very complex subject of study. It is clear that there is no simple causative factor that leads to the observed decline. The etiology and mechanisms involved in the deficits are equivocal and beyond the scope of this paper. Williams, Denney, and Schadler (1983) stated that, "with respect to memory, the reports of elderly adults correspond well with the results of memory research, which indicates that most memory abilities tend to decrease with increasing age" (p. 147). These deficits are thought to be attributed to age-related changes in the encoding and retrieval processes themselves (Shaw & Craik, 1989). More specifically, memory performance as reflected in objective memory measures declines significantly with age. "The relationship is strong and linear across the entire adult range" (Herzog & Rodgers, 1989, p. 180).

Additional research regarding memory decline has also pointed to older persons' beliefs about memory and its relationship to actual performance, which will be discussed below. Their responses converge on the conclusion that they perceive that their memory is worsening with age (Cavanaugh, 1987). It is somewhat unclear why this may be happening and what variables are involved besides simply getting older. Memory rated by older people themselves has been found to be strongly and positively related to physical health and negatively related to depression (Herzog & Rodgers, 1989). Cavanaugh further postulates that part of the subjective feeling of memory decline may be due to the acceptance of the stereotype of memory decline with age (p. 275). Lachman, Steinberg, and Trotter (1987) indicated that "there is evidence that elderly individuals and those that are depressed...are less likely to make adaptive, optimistic attributions, but rather see success as due to external, unstable, and specific causes" (p. 266).

Personality has also been found to be an important individual difference factor that should be taken into account in understanding memory performance

(Cavanaugh & Murphy, 1986). Specifically, anxiety and depression have been found to be two especially important aspects of personality involved in memory (West, Boatwright, & Schleser, 1984).

What complicates this paradigm further is that memory performance influences knowledge about memory (metamemory), since information about how memory works can be acquired through its use (Cavanaugh & Perlmutter, 1982). It has been found that self-evaluations may influence performance and subsequent evaluation (Lachman, Steinberg, & Trotter, 1987). Cavanaugh and Murphy (1986) state that "as long as one defines metamemory as statable knowledge about memory...results have shown...that what people know about their memory is related to how well they perform" (p. 386). It has been found that the aged often appear deficient in spontaneously producing appropriate and effective memory strategies when asked to remember, even though these strategies are helpful if older adults are induced to use them (Murphy, Sanders, Gabriesheski, & Schmitt, 1981).

One further problem with the general topic of memory decline in the literature is that the assessment of memory decline is not well understood and "that no comprehensive and well documented memory battery has been developed " (Erickson, Poon, & Walsh-Sweeney, 1980, p. 379). Age sensitive norms are only beginning to be developed. Data from metamemory measures and measures of memory complaint indicate that memory beliefs are only moderately accurate (Herrmann, 1982). Given this, the variable nature of memory decline in older adults remains somewhat elusive.

DEPRESSION AND AGING

Clinical experience and epidemiological studies have consistently found depression to be the second most common mental disorder in old age, exceeded only by dementia (O'Conner, Pollitt, Roth, Brooks, & Reiss, 1990). Estimates of

the prevalence of depression vary, reflecting differences in sample characteristics, criteria for case identification, and methods of evaluation. However, Major Depression is believed to occur in approximately 1-8% of older community-living adults (e.g., Blazer, Hughes, & George, 1987; Murrell & Meeks, 1991). Similarly, estimates from Scandinavian, United States, and European studies indicated depression in roughly as many older adults (Murrell & Meeks, 1991). When milder forms of depression are included, estimates ranged from 10-30% (e.g., Blazer, Hughes, & George, 1987; O'Conner, Pollitt, Roth, Brooks, & Reiss, 1990).

Estimates dramatically increase when one looks at medically ill and those older adults living in retirement and nursing homes. Jenike (1988) suggested 20-30% of elderly patients with medical problems are significantly depressed. Additionally, he wrote that "while those over age 65 account for about 11% of the United States population, they commit about one quarter of all suicides" (p. 89). In another striking study, it was suggested that depressive symptoms among the medically ill ranged from 12-58% of older adults, depending on the diagnostic procedure employed (Karanci, 1988). Stewart et al. (1991) found that in long-term and acute care facilities, from 10% to 20% of elderly people have a major depression.

Bieliauskas (1993) distinguishes primary depression and the depressive-like symptoms among the elderly. He draws on Freud's (1917), Mourning and Melancholia, by citing that a fall in self-esteem is "the critical difference between genuine pathological depression and the depressive-like symptoms which accompany grief reactions" (p. 125). He further extrapolates this concept to differentiating these similar, albeit qualitatively different, groups of symptoms for the aged by stating that:

> ...without the key presence of lowered self-esteem, we are not as likely to be dealing with primary psychological depression in elderly patients as we are faced with reactive grief or mourning and interpersonal loss, and complications of medical and neurological illness (p. 125)

Schneider (1992) reported that there are different clinical manifestations, course, outcome, and family history that distinguish depression first occurring earlier in life (i.e., prior to ages 50-60). He reported that early onset depression has been characterized by higher rates of depression in families, recurrent episodes, and suicide attempts compared to late-onset depressives. Late-onset depression was characterized by longer episodes, poorer outcome, and chronicity. Complaints of concentration and memory difficulties are symptomatic of depression and have been shown to be associated with aging (Herzog & Rodgers, 1989) and being depressed was strongly associated with elevated levels of other mental symptoms and with poor physical health (Lewinsohn, Rohde, Seeley, & Fischer, 1991). The authors stated further that

> although a number of provocative differences in the magnitude of association with depression in the young-old and old age groups were found, almost all the variables known from previous research to be associated with depression in younger people were also related to being depressed in older individuals (p. 258)

Given the prevalence of depression in the elderly, assessment of its presence has become increasingly important. Researchers, clinicians, as well as elderly persons, have also become increasingly concerned about the possible presence of dementia, such as Alzheimer's disease and other organic dementing processes. Memory is most often the cognitive function that is initially, and most severely, affected by such processes (Bolla, Huff, Nebes, Holland, & Boller, 1988). Older persons generally report that their memory functioning decreases as they advance in years. Therefore, it is important to elucidate whether memory

complaints from the elderly population are evidence for a dementing process or due to other factors, such as depression.

GENDER DIFFERENCES

The literature suggests that there are consistent differences between elderly women and men for both rates of depressive disorders and depressive symptomatology and for rates of cognitive decline, including memory. However, this finding is not universal.

Depressive symptomatology and depressive disorders have quite often been found to occur more frequently and with greater prevalence in women. Atchley (1976) reported that, in his sample, women showed an increased prevalence of depressive disorders. In their Italian study of 317 community living elderly, Carpiniello, Carta, and Rudas (1989) found a similar trend demonstrating a higher prevalence of depression in elderly women. Lewinsohn et al. (1991) found that, for women, old age was more highly associated with feelings of dissatisfaction with important life roles, with experiencing physical disease, and with marital conflict. In elderly people with some cognitive impairment, Fuhrer et al. (1992) found that women tended to report more depressive symptomatology.

Some differ on this reported gender difference. Hale and Cochran (1983), for instance, found that in a retirement community "older men and women have distinct patterns of symptom expression even when gender groups are matched on marital status and are similar in education and perceived health, it is worth noting that the groups did not differ in level of depression" (p. 649).
Linn, Hunter, and Harris (1980) found depressive symptoms more prevalent in older females, but they found that this gender difference was reduced to a statistically insignificant level when marital status was controlled.

Cognitive decline, including memory abilities, has consistently been shown to occur differently between the sexes. Wiederholt et al. (1983) found women to

show slower cognitive decline than men in a community sample of 1,692 elderly subjects. Zelinski, Gilewski, and Schaie (1993) also found that elderly women consistently out-perform elderly men on cognitive tasks. Specific to memory abilities, the literature rather consistently shows that elderly women achieve higher scores on measures of verbal selective reminding tasks, immediate recall (Wiederholt et al., 1993), and general verbal memory procedures (e.g., Trahan & Quintana, 1990) than do men. Interestingly, Herzog and Rodgers (1989) found that women rate their own memory performance lower than men rated theirs. They did find, contrary to the above literature, that there were no sex differences on objective memory performance.

MEMORY COMPLAINTS, DEPRESSION, AND OBJECTIVE PERFORMANCE

Clinicians will recognize that memory complaints increase with age. Researchers have been testing to see if memory complaints, in and of themselves, were good predictors of actual (objective) memory performance. The relationship between increased memory complaints and objective memory decline is less than well established (Lamberty & Bieliauskas, 1993).

Some investigators have found no relationship between subjective memory problems and objective measures. Additionally, researchers have found that subjective memory complaints are more closely related to the presence of depression. Chandler and Gerndt (1988) found non-significant differences between those with and without memory complaints on objective memory measures in a sample of psychiatric patients. Similarly, memory complaints were significantly related to the presence of depression (Niederehe & Yoder, 1989) regardless of objective memory performance (Kahn, Zarit, Hilbert, & Niederehe, 1975). O'Conner, Pollitt, Roth, Brooks, and Reiss (1990) found only a poor correlation between memory complaints and objective performance in both normals and those with depression. In their study, they found one-third of the

normals reported memory deterioration, although no (objective) evidence was found on testing.

Williams, Little, and Scates (1987) found that "depressed adults complained of greater memory problems than did non-depressed adults while memory test performances of both groups were in the Average to Above Average range" (p. 595). Memory complaints in the depressed elderly compared to both younger adults (Chandler & Gerndt, 1988) and to demented adults (O'Conner, Pollitt, Roth, Brooks, & Reiss, 1990) were not found to be indicative of actual memory deficits as measured by objective memory tests. Sunderland, Watts, Baddeley, and Harris (1986) found that interviewer ratings of the participants' memory complaints correlated with ratings of depression but not with performance on verbal memory tests. A more recent study by O'Boyle, Amadeo, and Self (1990) found that, in each of their groups (depressed and pseudodemented patients), memory complaints correlated strongly and positively with depression scores and not with a general measure of cognitive ability, though the pseudodemented group had a significantly higher cognitive complaint score than did the depressed group. One major methodological flaw with this study was that memory complaints were part of the diagnostic criteria for pseudodementia, so the latter finding is not surprising. Similarly, some studies have shown that as clinical depression lifts, memory complaints decrease (O'Conner, Pollitt, Roth, Brooks, & Reiss, 1990; Plitkin, Mintz, & Jarvick, 1985), though some have not found this (Niederehe, 1976). O'Conner, Pollitt, Roth, Brooks, and Reiss felt that, "although elderly persons' assessment of their own abilities are of considerable interest, they have little validity and should not be used to make even tentative diagnoses of dementia" (p. 311). These findings suggest that, although memory complaints can and do represent real memory decline in some older adults, they seem to relate more to levels of depression

rather than to actual deficits in memory. The implication of these findings is that memory complaints alone, without objective performance measures, should not be used as a diagnostic tool with older adults.

However, other investigators have found that memory complaints did predict actual memory performance on objective measures. Niederehe (1976) found that the depressed subjects he tested did not make distorted self-appraisals and were no more likely to underestimate performance than control subjects. Cavanaugh and Murphy (1986) found that metamemory and personality variables accounted for significant portions of the variance in memory performance on two different tasks (free-recall list learning and free-recall prose; p. 386).

Similarly, Cavanaugh and Poon (1989) found that performance on tasks that are more meaningful (e.g., prose) were better predicted by their metamemory questionnaire than performance on traditional laboratory memory tasks. Tests of immediate and delayed recall of verbal memory were found to significantly correlate with a memory complaint questionnaire (Sunderland, Watts, Baddeley, & Harris, 1986). Taylor, Miller, and Tinklenberg (1992), in their longitudinal study of community-dwelling older adults, observed decreased performance roughly parallel at the group level with self-reported memory decline.

Zelinski, Gilewski, and Thompson (1980) found that participants' subjective memory ratings were related to performance on laboratory tasks. Larrabee, West, and Crook (1990) found that self-rated memory and objective performance shared 27.9 to 29.4 percent of the variance in healthy community-dwelling people.

The investigations of the relationship between subjective memory complaints, objective performance, and depression are not in agreement.

Review of the studies cited above yielded four general distinctions that can be made which differentiate these studies and may solve the problem of conflicting results. The first distinction is the different types of subjective memory questionnaires/questions used in prior research. The second distinction is the populations used in each of the studies; many were psychiatric samples as opposed to community-dwelling older adults. Thirdly, the majority of the studies used depression measures that may not be appropriate for the older adult populations being considered. Lastly, the memory and cognitive measures employed in nearly all of the investigations cited above may also have not adequately assessed memory domains considered in the memory complaint questionnaires. All four distinctions will be discussed more fully below.

The first potential problem associated with some of the studies that found no relationship between complaints and performance is with the types of subjective ratings or questions the older people have been asked. Cavanaugh (1987) argued that "if memory changes with age, and if people have accurate knowledge of their memory, then these changes should be reflected in self-reports" (p. 271). As reflected above, many have not found this relationship. The discrepant results may be a function of the self-report measures.

The metamemory questionnaires have evolved from asking very general questions about perceived memory decline to more specific questions. Niederehe and Yoder (1989) found that depression was associated most strongly with reports of generalized difficulty, reflecting relatively nonspecific complaints. Similarly, Zelinski, Gilewski, and Thompson (1980) stated that multiple indices of memory evaluation definitely improved prediction. Given this, studies that used questionnaires that have asked more general or non-specific questions regarding memory would tend to find higher correlations with depression measures than with performance on objective measures. In the Chandler and Gerndt (1988)

study, the investigators asked only three very global questions of their patients. These questions were "(1) Do you have trouble remembering?, (2) Are there any activities which you are prevented from participating in as a result of these memory problems? and (3) Have you sought medical help or taken medication for this memory problem?" (p. 85). They were scored as having significant memory complaints if they answered yes to at least two of the three questions. The result of this study was that "memory complaint was significantly more common in depressed elderly subjects than in nondepressed subjects.... [and] there was no difference in memory testing scores between the patients with and without memory complaint" (p. 88). Kahn, Zarit, Hilbert, and Niederehe (1975) used subjects' spontaneous comments and only one global question to rate memory complaints in their sample. Similarly, O'Conner, Pollitt, Roth, Brooks, and Reiss (1990) asked only three very general questions to rate memory complaint. Both the previous studies attained results similar to those of Chandler and Gerndt, that complaint was related more to level of depression than objective performance. All three may have obtained their results because of the general and nonspecific nature of their assessment of memory complaint.

There are studies that did use more comprehensive memory complaint questionnaires that found only a poor relationship between complaint scores and objective performance. For example the investigations of Popkin, Gallagher, Thompson, and Moore (1982) and O'Boyle, Amadeo, and Self (1990) both utilized more comprehensive measures of memory complaint but found no relationship or a small relationship, respectively, so their negative findings cannot be explained away as easily.

All of the studies cited that found small, but significant, or robust correlations between memory complaint measures and objective performance used more comprehensive and specific measures of memory complaint

(Cavanaugh & Poon, 1989; Larrabee, West, & Crook, 1990; Niederehe, 1976; Sunderland, Watts, Baddeley, & Harris, 1986; Taylor, Miller, & Tinklenberg, 1992; Zelinski, Gilewski, & Thompson, 1980).

The author's hypothesis is that memory complaints may, in fact, reflect measurable memory problems, so this study will utilize the Memory Assessment Clinics Self-Rating Scale (MAC-S; Crook & Larrabee, 1990) which was developed by its authors to compensate for and improve on the questionnaires available at the time [see METHOD section].

The second distinction between the investigations is the populations used in each. Most of the studies that found a higher relationship between depression measures and memory complaints or only weak or no relationship with complaints and memory performance were conducted with psychiatric samples (Chandler & Gerndt, 1988; Kahn, Zarit, Hilbert, & Niederehe, 1975; O'Boyle, Amadeo & Self, 1990). This was not pervasive, however, as the studies of Popkin, Gallagher, Thompson, and Moore (1982) and O'Conner, Pollitt, Roth, Brooks, and Reiss (1990) did use community-based samples. Results from studies utilizing older adults with significant psychiatric problems, significant enough to be admitted to psychiatric units, may not be appropriate or generalizable to community-dwelling older adults.

Without exception, the studies that did find significant relationships between memory complaints and memory performance used community-dwelling older adults. The commonly held belief that memory complaints should not be used as a diagnostic tool for cognitive or memory dysfunction, because complaints are assumed to be reflective of depression, may not be appropriate for the significant majority of older adults that are living in their communities. This study will utilize "able" older adults that are living independently in order to make the results more applicable for the majority of older persons.

All of the studies which looked at presence of depression, with the exception of one, used self-report depression scales that may be inappropriate for use with older adults. Traditionally, the researchers in this area have employed depression measures such as the Beck Depression Inventory (BDI; Beck, Ward, Medelson, Mock, & Erbaugh, 1961) and the Hamilton Rating Scale for Depression (HDRS; Hamilton, 1967). Others have also used the Research Diagnostic Criteria (RDC) for depressive disorder and depression criteria from the Diagnostic and Statistical Manual of Mental Disorders, 3rd edition (1980). The drawback with these depression measures and criteria is their inclusion of a great many items that reflect somatic and/or vegetative symptoms of depression. There is no question that somatic complaints and vegetative symptomatology are part of the constellation of symptoms in depressive disorders. However, the vegetative symptoms assessed on these depression inventories (e.g., sleep disturbances, loss of libido, fatigue, etc.) are common among older adults, irrespective of true depression. With increased age comes a greater likelihood of physical problems that may have very similar symptoms as those reflected in some depression measures. Clinical experience suggests that using these types of items when assessing elderly populations may not be as useful as a measure that focuses more predominantly on dysphoric mood. Norris, Gallagher, Wilson, and Winograd (1987) reported that "due to several physical and content attributes of the BDI, the Geriatric Depression Scale (GDS; Yesavage et al., 1983) was found to be more desirable" (p. 994), especially when screening for depression in elderly medical patients (Karanci, 1988). Given this assessment, prior investigations that utilized measures that included somatic/vegetative symptoms may actually have been reporting exaggerated levels of depressive symptomatology when used with older populations.

These findings call into question the results of some of the studies that used the BDI or HDRS to assess the presence of depression in older adults. If indeed these measures exaggerate levels of depression, the higher correlations between subjective complaints and depression may be nothing more than a methodological artifact. For these reasons, this study will utilize the Geriatric Depression Scale (GDS), which was developed specifically to screen older adults for depression, in order to get a more accurate picture of the presence of depression [see METHOD section].

Finally, the lack of consistently strong relationships between subjective complaints and objective performance may reflect inadequate approximations between the types of objective memory measures and the subjective memory complaint measures. Traditional investigations have used laboratory-based memory tasks that are often different from memory tasks in everyday life, and are unrelated to the context of the individuals' lives (Herzog & Rodgers, 1989). Some of the laboratory tasks used in prior research include delayed recall of four unrelated words (Chandler & Gerndt, 1988), paired associate learning (Kahn, Zarit, Hilbert, Brooks, & Reiss, 1990), several immediate and delayed list-learning tasks (Cavanaugh & Poon, 1989; Niederehe & Yoder, 1989; Popkin, Gallagher, Thompson, & Moore, 1982; Taylor, Miller, & Tinklenberg, 1992; Zelinski, Gilewski, & Thompson, 1980) and several prose or text passage memory tasks (Cavanaugh & Poon, 1989; Larrabee, West, & Crook; 1990; Niederehe & Yoder, 1989; Popkin, Gallagher, Thompson, & Moore, 1982; Zelinski, Gilewski, & Thompson, 1980). Some research has indicated that prose recall (Sunderland, Watts, Baddeley, & Harris, 1986) or tasks that "are more meaningful" (Cavanaugh & Poon, 1989) or "ecologically valid" (Zelinski, Gilewski, & Thompson, 1980) were better predicted than performance on other laboratory based tasks. These are the memory tasks that clinicians and researchers have

used with older adults in order to assess their memories. However, the memory complaint questionnaires have not assessed these memory domains. For example, people are never asked to rate how well they will remember or if they have had any trouble remembering paired words or lists of unrelated items. The lack of more consistent findings may be the result of the incompatibility between the subjective memory complaint questionnaires and the memory tasks utilized in many of the studies.

Larrabee, West, and Crook (1991) found, despite some of the above findings, "significant associations...between self-rated and objectively measured memory, provided that measures are constructed to enhance isomorphism between rating scales and objective memory tests" (p. 475). In other words, when the subjective measure was more closely related to tasks that were to be objectively assessed, they did find an increase in relationship with objective performance. Memory complaint questionnaires have traditionally asked people to rate how well they are able to remember or how much trouble do they have remembering names, faces, where they have placed objects, and other items that are very applicable to circumstances that people encounter during their daily routines. These "everyday" items are exactly the types of problems that concern older adults and bring them to the attention of professionals.

Given these findings, subjective memory complaints should be more robustly predicted by objective memory tasks that approximate everyday types of memory tasks. The Rivermead Behavioural Memory Test (Wilson, Cockburn, & Baddeley, 1985) was designed to assess everyday memory and will be used in the present study.

Given the discrepancies in the literature regarding memory complaint and its relationship with memory performance and levels of depressive symptomatology, it is the aim of this study to test some of these questions. The

present study will utilize an improved subjective memory complaint questionnaire, a more traditional laboratory-based memory task, a memory test designed to assess everyday memory abilities, and a predominately mood-oriented depression measure in a sample of community-dwelling older persons. It is believed that, with these methodological improvements over past research, subjective memory complaints will indeed predict actual objective performance. These results will then be more directly applicable to the older person community.

HYPOTHESES

1. It is hypothesized that composite scores on the MAC-S (Ability total and Frequency of Occurrence total) reflecting higher levels of memory complaint will most be most strongly related to scores on the everyday memory tasks. Thus, it is hypothesized that the RBMT Standardized Profile score will account for the greatest amount of variability in the MAC-S scores. Memory performance on the Logical Memory I task, a more traditional laboratory memory task, will account for the second greatest amount of variability with the same measure. Lastly, depression scores from the GDS will account for the third greatest amount of variability with the MAC-S scores.

2. It is hypothesized that there will be a significant gender effect. It is predicted that females will tend to score lower on the MAC-S composite scores (indicating greater levels of memory complaint).

METHOD

Participants

The participants were 121 "able" older adults (31 men and 90 women) living independently in the community. All were aged between 51 and 91 with mean ages of 71 (SD = 6.4) for men and 69 (SD = 9.4) for women. The participants in this study were recruited through advertisements and flyers posted in the community. Each participant volunteered for the study which was advertised for those experiencing concern about their memory functioning. Each was given an assessment battery and a 7-session mood and memory workshop taught by advanced clinical psychology graduate students. This study included data gathered from the first administration of the battery ("pre").

Measures

1. Geriatric Depression Scale (GDS)

The Geriatric Depression Scale is a 30-item measure that has a yes-no format, with scores ranging from 0 (no depression) to 30 (severe depression). Subjects endorse items related to mood and psychological symptoms associated with depression. A one-month test-retest stability coefficient of .85 was found (Parmalee, Lawton, & Katz, 1989). The questionnaire was designed for use with older people (Parmalee, Lawton, & Katz, 1989), focusing on subjective affective states rather than vegetative symptoms, cognitive disturbances, thoughts of death, spending less time on hobbies, and other areas of concern that may be present in aged populations irrespective of presence of depression. They also found that "the GDS has a generally clear...factor structure... [which is] essentially unidimensional (general psychiatric distress; p. 337). The GDS

appears to be affected by age and sex differences, but these differences were consistently small (Parmalee, Lawton, & Katz, 1989). In its preliminary validation study, the GDS was found to be a reliable and valid self-rating depression screening scale for elderly populations (Yesavage et al., 1983). Additionally, the GDS was found to have good concurrent validity with the Hamilton Rating Scale for Depression with the Melancholia Scale (r = 0.77; Salamero & Marcos, 1992) and with psychiatric diagnoses in an older person community sample (Yesavage et al., 1983). Zgourides, Spofford, and Doppelt (1989) supported GDS validity, finding that the GDS significantly discriminated between depressed and nondepressed elderly day-treatment clients.

2. Memory Assessment Clinics Self-Rating Scale (MAC-S)

The Memory Assessment Clinics Self-Rating Scale (Crook & Larrabee, 1990) was developed to evaluate memory in everyday life. The measure consists of two composite score factors. The first is the Ability total, which is the sum of 18 items with questions about how people rate their memory in a number of everyday situations (e.g., remembering the name of someone just introduced, the date and day of the week, verbal directions to locations, which door you entered when shopping in a department store, etc.). These items are rated on a 5-point Likert scale, ranging from Very Poor to Very Good. The second is the Frequency of Occurrence total, which is the sum of 20 items with questions about how often people find themselves forgetting things (e.g., forgetting what you go into a room for, forgetting an entire event such as a party, forgetting the name of a familiar object, failing to recognize a person who recognizes you, etc.). These items are also rated on a 5-point Likert scale, with ratings from Very Often to Very Rarely. The measure also contains four global ratings items assessing overall comparison to others, comparison to the best one's memory has been, speed of recall, and concern or worry over memory function (p. 41).

The MAC-S items reflect everyday memory abilities and skills that are common to all age groups (Crook & Larrabee, 1992). It has the advantage of being brief, having a wide range of memory self-report factors, and a large normative base that covers the adult range of 18 to 92 years (p. 53). The MAC-S was found to show minimal associations with sex, WAIS Vocabulary, and educational level, with sex accounting for the largest amount of variance (5.6%).

Crook and Larrabee (1990) found that the GDS correlated significantly, in a negative direction, with 15 of 16 MAC-S variables, while only seven of these correlations accounted for greater that 6% of MAC-S test score variance (p. 50). Their study concluded that "the data suggest that the MAC-S Ability and Frequency of Occurrence total scores, Frequency of Occurrence factor scores, and global items are most likely to be associated with affective variation" (p. 52).

3. Rivermead Behavioural Memory Test (RBMT)

The Rivermead Behavioural Memory Test was developed to detect impairment of everyday memory functioning and to monitor changes following treatment for memory difficulties (Wilson, Cockburn, & Baddeley, 1985). The RBMT is "a bridge between laboratory-based measures of memory and assessments obtained by questionnaire and observations" (Wilson, Cockburn, Baddeley, & Hiorns, 1989, p. 857). The test was developed to provide analogues of everyday memory situations (Wilson, Cockburn, Baddeley, & Hiorns, 1989).

The subtests of the RBMT were chosen on the basis of the memory difficulties reported by subjects in a study of memory problems in a head-injury population (Sunderland, Harris, & Baddeley, 1983) and observations at the Rivermead Center, Oxford, England (Wilson, Cockburn, & Baddeley, 1985). There are twelve components of the RBMT, and are as follows: (I & II) Remembering a name (first (I) and last (II)), (III) Remembering a hidden belonging, (IV) Remembering an appointment, (V) Picture recognition, (VI)

Remembering a newspaper article (immediate and delayed), (VII) Face recognition, (VIII) Remembering a new route (immediate), (IX) Remembering a new route (delayed), (X) Delivering a message, (XI) Orientation (nine questions in both time and place), and (XII) Date. Each component is allocated 2 points (normal), 1 point (borderline), or 0 points (abnormal) depending on the raw score. The Standardized Profile Score is the sum of these allocated points across the components. This enables comparison across items (Wilson, Cockburn, & Baddeley, 1985).

The validation study conducted by Wilson, Cockburn, Baddeley, and Hiorns (1989) yielded extremely high inter-rater reliability (100%) between two raters scoring 40 subject's profiles. The RBMT was designed with four parallel forms (A,B,C,D). Reliability scores yielded correlations with version A of .86, .83, and .88 respectively. The test-retest reliability with 118 patients whom were tested twice yielded a correlation of .85 for the Profile Score.

The validity of the RBMT, in the above cited study, was assessed in four ways. The first was comparing overall level of performance between brain damaged patients and controls. The assumption was that brain damaged patients would have substantially more memory problems. The results showed that brain damaged patients had substantially lower scores than the controls. The second attempt was to find concurrent validity with existing standard memory tests. They found that correlations ranged from .20 to .63 on different measures and they maintained that the RBMT "can be regarded as measuring overall memory performance...assessed in terms of existing tests (Wilson, Cockburn, Baddeley, and Hiorns, 1989; p. 863). Thirdly, since the test was designed to reflect everyday memory, they compared the RBMT scores with observations of memory lapses made by therapists. The correlation between RBMT Profile Scores and the number of memory lapses reported by observers was -.75 for the

Standardized Profile Score ($p < .001$). Lastly, they compared RBMT scores with subjective ratings of memory problems by patients and relatives and found correlations that suggest the RBMT is a valid indicator of everyday memory problems.

4. Storandt Brief Dementia Battery

The Storandt brief dementia battery is an easily administered battery of four neuropsychological tests. The battery classified successfully 98% of patients with mild dementia of the Alzheimer's type and healthy older persons matched for age, sex, and social position (Storandt, Botwinick, Danziger, Berg, & Hughes, 1984, p. 497). The battery includes the Logical Memory I (LM) and Mental Control (MC) subtests of the Wechsler Memory Scale (Wechsler, 1945), Trailmaking, Form A (Armitage, 1946), and a word fluency test (C & P, Thurston & Thurston, 1949.). The Logical Memory I subtest is a test of auditory-linguistic memory requiring verbal recall of auditorally presented prose passages (Abikoff et al., 1987). This subtest will be used as the laboratory-type measure of memory for this study. The Trailmaking Test (Form A) is a timed visuospatial tracking measure that involves tracing lines from circled numbers (e.g., 1 to 2, 2 to 3, etc.). The word fluency measure requires the person to name as many words as possible that begin with the letters S and P in a 60 second interval. The Mental Control subtest involves recall of well-practiced information (e.g., the alphabet, counting backward from 20, and counting forward by three's). The original study tested 84 persons, half diagnosed with senile dementia of the Alzheimer's type (SDAT) and half were matched normals. Based on preliminary correlational analyses, the brief battery was chosen from a larger number of psychological tests. Following this, a discriminant function analysis was carried out on only half of the sample of subjects with SDAT and matched normal control subjects. The results were then applied to the second half of the sample. The

raw scores of each of the four measures are then entered into a computational formula to yield a canonical score. Canonical scores greater than or equal to 0 are classified as demented; those with scores less than 0 are classified as normal. The 1984 study found that only two people (one demented and one normal) were misclassified using this brief dementia screening battery. Storandt and Hill (1989) used the canonical score to evaluate 41 individuals with very mild SDAT, 83 healthy participants, and 66 with mild SDAT. Using the canonical formula and its cutoff point of 0, no one in the control group and only three people in the mildly demented group were misclassified.

Procedure

Depression and memory measures were administered as part of a larger battery. Only a portion of the measures used in this battery were under investigation for this study. The participants were assessed by advanced graduate students, as mentioned above. The examiners were trained and observed by a clinical faculty member. The test order was fixed in order to reduce the possibility of serial effects and fatigue. All measures were administered and scored according to each measure's published administration and scoring rules. Each participant's raw data were re-scored for accuracy and coded by the present investigator.

RESULTS

Descriptive Statistics

The Memory Assessment Clinics Self-Rating Scale (MAC-S), Total, Rivermead Behavioural Memory Test (RBMT), Logical Memory I score, and the Geriatric Depression Scale (GDS) were used in testing the hypotheses. Means and standard deviations for the measures are presented in Table 1. Intercorrelations between the measures are shown in Table 2.

Gender Effect Hypotheses

The gender hypothesis stated that there would be a significant difference between males and females on the MAC-S Ability total and Frequency of Occurrence total composite scores, with females' scores indicating greater levels of memory complaint; it was not supported. The *t*-tests on gender revealed no significant difference between males (M = 57.1) and females (M = 57.0) on MAC-S Ability Scores, $t(119) = .070$, $p = .945$. The *t*-tests on gender also revealed no significant difference between males (M = 63.9) and females (M = 64.5) on MAC-S Frequency of Occurence Scores, $t(119) = -.28$, $p = .78$. Table 3 shows the *t*-test results for each variable.

Memory Complaint and Performance Hypotheses

The hypothesis stated that the everyday memory tests (RBMT) would account for the greatest amount of variability in the MAC-S composite scores (Ability total and Frequency of Occurence total). Additionally, the Logical Memory task and the Geriatric Depression Scale would account for the second and third greatest amount of variability, respectively. The hypothesis that the

Table 1

Means and Standard Deviations of Measures (N = 121)

Variable	Mean	SD	Min	Max
Age	69.49	8.71	51	91
Education	14.64	2.88	8	21
MAC-S‡				
Ability total	57.02	10.40	29	82
Frequency of Occurence total	64.35	10.83	27	92
RBMT Standardized Profile Score	18.84	4.65	1	24
Logical Memory I‡	17.93	7.16	0	34
GDS‡	7.17	5.91	0	24

‡ The means and standard deviations are based on raw scores

Table 2

Intercorrelations Among the Measures (N = 121)

	2.	3.	4.	5.
MAC-S				
1. Ability	.684***	.356***	.302***	-.442***
2. Frequency of Occurrence		.296**	.236**	-.489***
3. RBMT			.568***	-.243**
4. Logical Memory I				-.202*
5. Geriatric Depression Scale				

* = significant at .05 level

** = significant at .01 level

*** = significant at .001 level

Table 3

Gender-Based Tests of Mean Differences

Variable	Mean	SD	p
MAC-S Ability Total			
Males	57.129	9.190	.945
Females	56.978	10.826	
MAC-S Frequency of Occurrence Total			
Males	63.871	11.427	.778
Females	64.511	10.682	
RBMT Standardized Profile Score			
Males	18.226	4.295	.400
Females	19.044	4.773	
Logical Memory I			
Males	18.613	8.260	.543
Females	17.700	6.772	
Geriatric Depression Scale			
Males	6.194	6.129	.286
Females	7.511	5.829	

RBMT would account for the greatest variance in MAC-S composite scores was not supported. Each of these analyses will be discussed below.

The hypothesis that the RBMT would account for the greatest amount of variability in the MAC-S Ability total was not supported. The RBMT did, as hypothesized, account for a greater amount of variance than did Logical Memory. The analyses to derive the relative contribution of each of the measures to the dependent measure were conducted in three steps. The first step was simply finding the correlation between the GDS, RBMT, Logical Memory scores and the MAC-S Ability total. The second step was entering the measures two at a time to see the additional change in variance accounted for using a two-measure model as predictors. Lastly, all of the variables were entered simultaneously, giving Beta weights for each measure. The final computation was finding the relative change in variance accounted for by each measure when added to the two-measure model found in step two. Results from regression analyses predicting MAC-S Ability total are summarized in Table 4.

Step One

First GDS, RBMT, and Logical Memory were used to predict MAC-S Ability total. In Table 4 it can be seen that the GDS score by itself accounted for nearly 20% of the MAC-S Ability total score variance ($R^2 = .195$, $p < .001$). The RBMT Standard Score sum accounted for nearly 13% of the variance ($R^2 = .127$, $p < .001$). Finally, Logical Memory score accounted for 9% of the variance ($R^2 = .091$, $p < .01$).

Step Two

The second step was a series of two-variable combinations as predictors of the dependent measure. The first was the combination of GDS and RBMT (2a) which accounted for 26% of the variance ($R^2 = .261$, $p < .05$).

Adding RBMT to GDS, resulted in an increase of 7% to the variance, (ΔR^2 = .066, $p < .05$). Conversely, adding GDS to RBMT yielded an increase of 13% to the variance (ΔR^2 = .134, $p = < .01$). The second combination of GDS and Logical Memory (2b) accounted for 24% of the variance (R^2 = .242, $p < .001$). Adding Logical Memory to GDS yielded an increase of nearly 5% to the variance (ΔR^2 = .047, $p < .05$). Conversely, adding GDS to Logical Memory yielded an increase of 15% to the variance (ΔR^2 = .151, $p < .001$). Lastly, the combination of RBMT and Logical Memory (2c) accounted for nearly 14% of the variance (R^2 = .137, $p < .001$). Adding RBMT to Logical Memory resulted in an increase of 5% to the variance (ΔR^2 = .051, $p < .05$). And adding Logical Memory to RBMT yielded an increase of nearly 2% to the variance (ΔR^2 = .015, ns).

Step Three

In the final step, all variables (GDS, RBMT, and Logical Memory) were entered into the model as predictors. 27% of the MAC-S Ability Total was explained by the three variables (R^2 = .270, $p < .001$; GDS Beta = -0.370, $p < .001$, RBMT Beta = 0.203, $p < .05$, Logical Memory Beta = -0.112, ns). Finally, the incremental change in variance accounted for (ΔR^2) was calculated as the change in total R^2 for the inclusive model (R^2 = .270) from the R^2 contributions of the variable combinations entered in Step 2. Adding Logical Memory to GDS and RBMT (2a) yielded an increase of less than 1% to the variance (ΔR^2 = .009, ns). Adding RBMT to GDS and Logical Memory (2b) yielded a significant increase of nearly 3% to the variance (ΔR^2 = .027, $p < .05$). Finally, adding GDS to RBMT and Logical Memory (2c) yielded a significant increase of nearly 13% to the variance (ΔR^2 = .128, $p < .001$).

The hypothesis that the RBMT would account for the greatest amount of variability in the MAC-S Frequency of Occurrence total was also not supported.

Again, the RBMT did, as hypothesized, account for a greater amount of variance than did Logical Memory. The analyses to derive the relative contribution of each of the measures to the dependent measure were conducted in three steps (see description above). Results from regression analyses predicting MAC-S Frequency of Occurrence total are summarized in Table 5.

Step One

First GDS, RBMT, and Logical Memory were used to predict MAC-S Ability Total. In Table 5 it can be seen that the GDS score by itself accounted for 11% of the MAC-S Ability Total score variance (R^2 = .113, p < .001). The RBMT Standard Score sum accounted for nearly 8% of the variance (R^2 = ..078, p < .01). Finally, Logical Memory score accounted for nearly 3% of the variance (R^2 = .028, ns).

Step Two

The second step was the same series, as stated above, of two-variable combinations entered as predictors of the dependent measure. The first was the combination of GDS and RBMT (2a) which accounted for 15% of the variance (R^2 = .154, p < .001). Adding RBMT to GDS, resulted in an increase of 4% to the variance, (ΔR^2 = .041, p < .05). Conversely, adding GDS to RBMT yielded an increase of nearly 8% to the variance (ΔR^2 = .077, p < .01). The second combination of GDS and Logical Memory (2b) accounted for 12% of the variance (R^2 = .124, p < .001). Adding Logical Memory to GDS yielded an increase of 1% to the variance (ΔR^2 = .011, ns). Conversely, adding GDS to Logical Memory yielded an increase of nearly 10% to the variance (ΔR^2 = .095, p < .001). Lastly, the combination of RBMT and Logical Memory (2c) accounted for nearly 8% of the variance (R^2 = .078, p < .01). Adding RBMT to Logical Memory resulted in an increase of 5% to the variance (ΔR^2 = .05, p < .05). And adding Logical Memory to RBMT yielded no increase to the variance (ΔR^2 = .00, ns).

Step Three

In the final step, all variables (GDS, RBMT, and Logical Memory) were entered into the model as predictors. Nearly 16% of the MAC-S Frequency of Occurrence total was explained by the three variables (R^2 = .155, p < .001; GDS Beta = -0.286, p < .001, RBMT Beta = 0.216, ns, Logical Memory Beta = -0.012, ns). Finally, the incremental change in variance accounted for (ΔR^2) was calculated as the change in total R^2 for the inclusive model (R^2 = .155) from the R^2 contributions of the variable combinations entered in Step 2. Adding Logical Memory to GDS and RBMT (2a) yielded no increase to the variance (ΔR^2 = .000, ns). Adding RBMT to GDS and Logical Memory (2b) yielded a significant increase of 3% to the variance (ΔR^2 = .031, p < .05). Finally, adding GDS to RBMT and Logical Memory (2c) yielded a significant increase of nearly 8% to the variance (ΔR^2 = .078, p < .01).

Table 4

Hierarchical Multiple Regression Analyses Predicting
MAC- S Ability Total Raw Score

Total sample (n = 121)

1. First step entry	R	R^2	ΔR^2	ß†
a. Geriatric Depression Scale	.442	.195***		
b. RBMT sum of std. scores	.366	.127***		
c. Logical Memory	.302	.091**		
2. Second step entry				
a. GDS & RBMT	.511	.261***		
Adding RBMT to GDS			.066*	
Adding GDS to RBMT			.134**	
b. GDS & Logical Memory	.492	.242***		
Adding Logical Memory to GDS				.047*
Logical Memory			.151***	
c. RBMT & Logical Memory	.370	.137***		
Adding RBMT to Logical Mem.			.051*	
Logical Memory			.015	
3. Third step entry				
g. All Variables	.519	.270***		
Geriatric Depression Scale				-0.370***
RBMT sum				0.203*
Logical Memory				-0.112
Adding Logical Mem. to GDS & RBMT (2a)			.009	
Adding RBMT to GDS & Logical Mem. (2b)			.027*	
Adding GDS to RBMT & Logical Mem. (2c)			.128***	

† ß (Beta) is for all variables entered simultaneously and is without regard to previous order of entry.

* = significant at .05 level
** = significant at .01 level
*** = significant at .001 level

Table 5

Hierarchical Multiple Regression Analyses Predicting
MAC-S Frequency of Occurrence Total Raw Score

Total sample (n = 121)				
1. First step entry	R	R^2	ΔR^2	ß†
a. Geriatric Depression Scale	.337	.113***		
b. RBMT sum of std. scores	.279	.078**		
c. Logical Memory	.168	.028		
2. Second step entry				
a. GDS & RBMT	.393	.154***		
Adding RBMT to GDS			.041*	
Adding GDS to RBMT			.077**	
b. GDS & Logical Memory	.352	.124***		
Adding Logical Mem. to GDS			.011	
Adding GDS to Logical Mem.			.095***	
c. RBMT & Logical Memory	.279	.078**		
Adding RBMT to Logical Mem.			.050*	
Adding Logical Mem. to RBMT			.000	
3. Thid step entry				
All Variables	.393	.155***		
Geriatric Depression Scale				-0.286***
RBMT sum				0.216
Logical Memory				-0.012
Adding Logical Mem. to GDS & RBMT (2a)			.000	
Adding RBMT to GDS & Logical Mem. (2b)			.031*	
Adding GDS to RBMT & Logical Mem. (2c)			.078**	

† ß (Beta) is for all variables entered simultaneously and is without regard to previous order of entry.

* = significant at .05 level
** = significant at .01 level
*** = significant at .001 level

DISCUSSION

The results of the present study failed to support the hypothesized strength of the relationships between subjective memory complaints, objective performance, and depressive symptomatology. However, the results do support the hypothesized superior predictive value of memory complaints as they relate to everyday memory measures when compared to more traditional laboratory-based memory measure. The results did support significant, but weak, relationships between the objective memory measures and memory complaint. Finally, the predicted relationship between gender and memory complaints was also unsupported. Each result will be discussed in turn followed by a general discussion and recommendations.

The hypothesis that, given a more targeted method of measuring depressed mood in older adults, the relationship between memory complaints and depressed mood would be weaker than when compared to memory measures, was not supported. Similar to the findings of Kahn, Zarit, Hilbert, and Niederehe (1975) and Niederehe and Yoder (1989) the depression measure used in this study did indeed account for more variance in both of the memory complaint composite totals (Ability total and Frequency of Occurrence total) than either of the objective memory measures. Interestingly, the correlation between the Geriatric Depression Scale (GDS) scores and the two composite memory complaint totals was lower than the reported correlations between depression and complaint measures in previous studies (e.g., Kahn, Zarit, Hilbert, & Niederehe, 1975; O'Boyle, Amadeo, & Self, 1990). The use of a depression

measure without a preponderance of vegetative/somatic symptom ratings, with their suspected exaggerated ratings of depression in older adults, may have contributed to the lower correlations between subjective complaint and depression. It would be helpful for a future study, to include both types of measures of depression in an analysis, to investigate this possible relationship.

The Rivermead Behavioural Memory Test (RBMT) did not account for more variance than did the GDS, although as predicted, this everyday memory measure did account for more variance than did the traditional laboratory memory test, Logical Memory I. The Logical Memory task is an immediate recall of two prose passages, whereas the RBMT is a series of memory tasks approximating what a person would likely encounter during an average day. This does support the notion of this author, and others (Cavanaugh & Poon, 1989; Zelinski, Gilewski, & Thompson, 1980), that increased isomorphism between complaint and memory measures would increase the correlation between them.

The more laboratory-based memory measure, Logical Memory I, was found to account for the least amount of variance in the MAC-S composite scores. The relative contribution of this measure to the variance was very small and was not significant with respect to either the MAC-S Ability and Frequency of Occurrence totals. This, again, is in accord with the prior investigations that found only a weak or no relationship between complaint and objective performance.

These analyses revealed no significant differences between males and females on any of the measures. In fact, the results suggest that mean scores on these measures were strikingly comparable as a function of gender. One significant difference along gender lines was, however, revealed. Males ($M = 15.7$) were found to have a significantly higher level of education than women ($M = 14.3$) in this sample ($p < .01$). Due to this significant education difference,

analyses were conducted holding this variable constant. Separate analysis of covariance (ANCOVA) analyses were conducted, holding education constant. These ANCOVAs were done for all variables and in no case did the gender effect become significant.

General Discussion

The major finding of this study revealed the stronger association between memory complaints with depression than with objective memory performance. There are two general perspectives that may be helpful in understanding this finding. The first suggests that depressed people exaggerate their symptoms and negative complaints. The second perspective, the depressive realism hypothesis, suggests that depressed individuals are, in fact, more accurate and realistic in their appraisals.

This above finding may imply that there is some shared factor that both memory complaints and depression measures assess. It seems reasonable to assume that the nature of depression and depressed mood in older adults may also contribute to the increased likelihood of reporting memory problems. Beck (1971) suggested that exaggeration of symptoms, complaints, or negative perceptions may reflect an underlying personality structure (i.e., depression). Similarly, Kahn, Zarit, Hilbert, and Niederehe (1989) posited that "exaggerated memory complaints is considered a manifestation of a general pattern of discrepant reporting of symptoms by depressed persons, and may be related to an underlying personality factor..." (p. 1573). Additionally, Niederehe and Yoder (1989) stated complaints about memory may be potentiated if the individual harbors negative perceptions about memory and age changes. Therefore, though the levels of depression as measured by the GDS did not reflect, on average, evidence of clinical levels of depression, the increased endorsement of depressive symptomatology and dysphoric mood also has a positive association

with complaints and exaggerations of symptoms in other domains, specifically regarding memory. The effect is a statement of this sort, "I am feeling very sad, hopeless, guilty, and am experiencing interferences in my current life, including worrisome memory problems".

However, there is also literature that suggests that people tend to exhibit unrealistic optimism about their own ability (Dunning & Story, 1991) and that "...at times depressed people are 'sadder but wiser' than nondepressed people" (Alloy & Abramson, 1979, p. 479-480). This fact "runs counter to the traditional cognitive conception of depression whereby depressed persons are believed to be overly negative in their perceptions" (Dobson & Franche, 1989, p. 419). Given that it is generally found that memory performance declines significantly with age (e.g., Herzog & Rodgers, 1989; Williams, Denney, and Schadler, 1983), perhaps those older adults whose endorsements suggest depressive mood are accurately perceiving this decline. This perspective would account for the higher levels of memory complaints in this sub-population of older adults.

Memory measure scores for older individuals are compared to normative data, which reflect this general decline in memory function on average. Perhaps it is the case that, given the general decline in memory functioning with increasing age, those older adults exhibiting more depressive symptomatology are accurately perceiving this decline and reporting it via the memory complaint questionnaires. The non-depressed older adults may be over-estimating their current memory functioning or painting a rosier picture than actually exisits, thereby not reporting increased memory complaints on these measures. In order to make this relationship clearer, premorbid data would need to be obtained to see if an individual's memory functioning had declined from previous levels. Then, the question of whether memory complaints are accurate would be more reliably validated.

Given the above findings, it seems that assessments of older adults with memory complaints should also include measures of depressive symptomatology. Diagnoses of memory dysfunction, altered brain function, and other organic processes should be considered tentatively and carefully, especially before knowing if depression and its symptomatology are present for an older individual.

The populations used in several of the previous studies reviewed were mostly psychiatric inpatients or outpatients. There was question whether the results of thses studies could be fairly generalized to the substantial majority of older adults who are living independently in the community without symptoms debilitating enough to come to the attention of health care professionals. This study utilized a group of community-dwelling older adult volunteers in order to see if the relationships found with previous samples could be applied to the majority of older adults. The use of this population, with milder levels of depressive symptomatology than those in psychiatric samples, mirrored the findings with those populations. This finding lends support to the notion that depression is not qualitatively different than lower levels of dysphoric mood. Gradations in quantity separate individuals with dysphoric mood, rather than discrete entities of psychopathology. Given that the results did indicate the same general trends as the previous research, this study should add more confidence to practitioners' diagnostic and treatment considerations with healthy "able" older adults.

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